

During wartime or a natural disaster, food shortages and lack of natural gas or electricity for cooking requires a great deal of improvisation and reliance upon back-to-basics cooking techniques used by our forefathers in order to survive. In an emergency it helps to know what to do with all the wheat, rice, cornmeal, sugar, molasses, vegetable oil and dried beans, milk, fruits and vegetables which you've wisely cached along with firewood or cooking fuel. Colonial, pioneer and nineteenth century military cooking methods and recipes are useful when preparing meals from simple cached staples. Many of the recipes included in this information paper don't need perishables like meat, eggs or yeast which you might not have. Recipes for the modern kitchen with a temperature controlled oven will naturally have to be adjusted by trial and error if you are baking in a clay oven in the field or cooking over a campfire. Improvisation is called for to substitute what is available. For example if a recipe calls for bacon drippings, you can use any cooking fat like lard, margarine, butter, vegetable oil or shortening. Butter Flavor Crisco can be used in most recipes, doesn't require refrigeration and is available in easy to measure sticks. The interaction between a sweetener, baking soda and buttermilk or sour milk (which you can make by adding a little vinegar to reconstituted dry milk; 1 tablespoon per cup of milk and let stand 5 minutes) can substitute for yeast if none is available. White hardwood ashes can replace baking powder as a leavening agent. Honey, molasses or syrups can be substituted for sugar in most recipes by using less water (1 cup honey = 1-1/4 cup sugar plus 1/4 cup liquid). Use whatever dried fruit is available regardless of what the recipe calls for. Experimentation is the order of the day. If you remember to add spices in stages (they can't be removed if you use too much) and if all of the ingredients you use are food, then the chances are the end result will be edible (especially if you are hungry enough).

Sources of Recipes. Living history reenactors of the American Revolution and the War of Northern Aggression take great delight in recreating authentic army meals around their campfires and hardcore reenactors actually eat the mess. Patricia B. Mitchell has published a series of cookbooks (available from Sims-Mitchell House Bed & Breakfast, 242 Whittle Street SW, P.O. Box 429, Chatham, VA 24531) to make this task easier and many excerpts from her books "Revolutionary Recipes," "Union Army Camp Cooking," "Confederate Camp Cooking," "Confederate Home Cooking" and "Cooking for the Cause" are included in this paper. Some recipes have been included from "Colonial Treasure Cookbook" (Hutcraft, High Point, NC 27262) and from "Colonial Fireplace Cooking & Early American Recipes" (Shoestring Press, 430 N. Harrison, East Lansing, MI 48823). Regional cookbooks, especially from the South, are a source of recipes for nutritional meals from simple foods. Recipes have been included from various southern cookbooks including "Cookin' Yankees Ain't Et" (The Merry Mountaineers, Highlands, NC 28741), "Southern Recipes" and "Piggin' Out in Dixie" (Southern Cookbooks, P.O. Box 100905, Nashville, TN 37224). Recipes and field cooking techniques have also been excerpted from "The Green Beret Gourmet" (The Gutenberg Press Publications, P.O. Box 973, Rockledge, FL 32955). Some quick bread recipes which don't require yeast come from "Sunset Breads" (Sunset Publishing Corp., Menlo Park, CA 94025), a cookbook with recipes from

all over the world. If you have active dry yeast or sourdough starter, this book is an excellent reference for other bread recipes not included in this paper. Vegetarian cookbooks should also be a good source of survival recipes, but being a confirmed carnivore, the writer of this paper has no personal knowledge of any such books. Backpacking books are also an excellent source of field cooking techniques and recipes. There is a chapter on field nutrition and camp cooking as well as an extensive appendix of recipes in "The National Outdoor Leadership School's Wilderness Guide" (Simon & Schuster, Inc., Simon & Schuster Building, Rockefeller Center, 1230 Avenue of the Americas, New York, NY 10020). "Roughing It Easy" by Dian Thomas (The Dian Thomas Company, P.O. Box 171107, Holladay, UT 84117; 1-800-846-6355) is a comprehensive collection of outdoor cooking recipes and techniques, including many variations on improvised tin can stoves and ovens, pit and open fire cooking, dutch oven cooking, building a solar reflector cooker or solar oven and a section on drying fruits, vegetables and jerky.

The Improvised Kitchen. You should have a camping stove for emergency cooking purposes. Two-burner stoves are useful in a fixed location or if you are vehicle mobile. Propane stoves are easy to use but fuel is expensive, the high pressure steel canisters are heavy and not likely to be widely available during a long-term emergency. A multifuel stove capable of using either white gas (lantern fuel or Coleman fuel) or ordinary gasoline is easier to resupply in an emergency. However, gasoline burns hotter than propane and is not as useful for low heat simmering of foods, so it might be wise to have both types of stove. If you are in a fixed location like a survival retreat or base camp, nothing beats a cast iron skillet, covered kettle and especially a dutch oven for open fire or hot coal cooking. An excellent configuration for a cooking fire is the keyhole type. Build a fire ring of rocks with a rectangular extension, build a fire in the circular part and coals can be raked or shoveled into the rectangular cooking area as needed. A grill or griddle can be supported over the rectangular cooking area (bricks can be used instead of rocks here for more stability) or the area can be used with a dutch oven. A metal tripod (or one fashioned from green branches) to hang a kettle can be used for boiling water or directly cooking over the flames in the circular part of the fire ring. The book "Roughing It Easy" shows how useful heavy duty aluminum foil is for outdoor cooking; stock up. Also, if you store food in large #10 cans (1 gallon) or in five gallon square cans, get this book and a pair of tin snips to convert the empty cans into many useful stove and oven variations. A cookie cooling rack can be used over a small pit of coals or an improvised #10 can barbecue. A grill and dutch oven can be arranged to allow simultaneous use as a baking oven and for frying. Dig a shallow hole 9 to 12 inches in diameter and 3 to 4 inches deep; place coals or charcoal briquets in the hole and place the grill across the hole; put the pan containing the item to be baked on the grill and cover with an inverted dutch oven; place coals on the base of the dutch oven which is now the top; place the inverted dutch oven lid on the base tripod legs and it becomes a griddle for frying foods. Another useful accessory for either base camp cooking or for use in the field is a folding pack grill. Such a grill can be used for directly broiling meats, as a stand over the coals for a skillet, griddle or a stock pot (used for soups and stews, as a steamer or as an oven for baking or

roasting), as a reflector oven (using disposable aluminum cooking pans for reflectors), as a stand for an inverted dutch oven lid allowing it to be used for frying, as a dirt free stand for placing a dutch oven lid when adding ingredients to or checking the progress of food in the oven and as a stand away from the fire for serving or for safely adding ingredients without burning yourself or spilling the food. The Coghlan's brand pack grill is cheap enough (about \$3 to \$4 in discount stores) that several can be purchased for use in a base camp. A single pack grill and a lightweight nesting cooking set or GI mess kit can be carried in your rucksack to simplify field cooking. You can also add a folding pocket stove or GI canteen cup stand and solid fuel tablets to your rucksack for reheating prepared foods or preparing hot beverages like instant soup, coffee, tea or cocoa. To ease the cleanup chore when reheating cooked food, immerse the food container (can, MRE pouch, vacuum seal bag or freezer bag) in boiling water in your cooking pot; pierce the food container above the water line so it doesn't explode. In the field this method of heating food reduces cooking odors and lessens the chance of giving away your unit's position to enemy scouts. A single-burner butane or multifuel backpacking stove can be shared between two or three people. Most butane cartridges nowadays are filled with iso-butane which can be used down to about 20 degrees but, like with two-burner camp stoves, a multifuel stove is easier to resupply. Get an extra GI canteen cover and you can carry your stove attached to the side of your GI rucksack. If you are on the move without a vehicle or pack animals to carry heavy cooking vessels like cast iron skillets and dutch ovens (or in case you get separated from your well stocked rucksack), here are some of the many other ways of cooking food using natural materials described in "The Green Beret Gourmet":

Clay Ovens: Construct an arched structure of green sticks (similar in shape to a beehive), insert a thick stick vertically through the top to form a flue opening and daub with wet clay until it is completely covered except for a front opening. Pile on successive layers of clay until a thick wall is made. Allow the layers to dry between applications by either placing hot coals inside or, if time is not a problem, by the sun. If each layer is not thoroughly dry, the oven will crack when you try to use it. A clay oven can also be made by hammering a thick sharpened stick down through a bank or slope about three feet back from the edge. Scoop out the size of the oven you want about a foot or so down the bank. Leave a thick ceiling. Leave a narrow front opening and dig back and hollow the bank as far as the stick which you hammered down. Pull the stick out to form the chimney opening. Wet your hands and smooth the interior surfaces, then harden the walls by building a small fire inside. After your oven is prepared, to use it build a fire inside. When the fire has burned down, scrape out the coals and ashes. Lay food inside on stones, leaves or hardwood slabs. Close off the front opening and flue. Leave food inside to cook. Cooking time depends upon the type of food being cooked.

Cooking in Natural Containers: A stone with a hollow in it makes an excellent container. If it is small enough you can build a fire around the stone. Bark can be used to fashion pots to boil water, cook soups, stews or any foods with liquids over a fire. Peel a square of bark and fold the corners inward and hold them in place with wooden pegs. Keep

the flames from touching your bark pot above the liquid level and your meal will cook in this simple container. Large leaves make an instant "aluminum foil" when baking or steaming food, but be sure to use edible nonpoisonous leaves.

Baking in Clay. This method is excellent for small game or fish. Remove the entrails from the animal being prepared. This is easiest to do if the animal is already dead. Do not skin, pluck or scale. Cover with a layer of clay about an inch thick. Place it in hot ashes and build a fire above it. Cooking time varies with animal size and taste preference. A one pound animal will be cooked in approximately 30 to 40 minutes. The meat will be stripped clean of fur, feathers or scales when you break off the clay.

Baking on a Stick. Heat a peeled green stick by the fire while you prepare a bread dough. Mix a GI canteen cup of flour with a mound of baking powder the size of a quarter and a dash of salt. Add water gradually to make a soft dough. Work quickly so the bread will rise as it bakes. Wrap dough around heated stick and place upright next to the fire to let it bake.

Cooking in Ashes. Foodstuff is placed in warm ashes and then covered with embers. Self-contained foods such as vegetables do not need to be wrapped in anything; simply place them in the ashes and dust them off after cooking. Cooking time depends upon the type of food and personal preferences. You can test vegetables by feeling for softness and putting them back if they still feel firm.

Cooking on Wood Slabs. Select a green hardwood slab (evergreens season the food with a pine or turpentine taste) large enough to lash or peg the animal. Fish and very small game can be successfully cooked this way. Clean the animal and flatten down on the slab. Either pin the animal down with wooden pegs or lash to the slab with whatever is available. Lean the slab up in front of glowing coals. Turn a few times so the food will cook evenly. This recipe comes from Richmond, Virginia in the Confederate States of America when Yankee invaders were marauding and food was in short supply:

Roasted Rat

The rat must be skinned, cleaned, his head cut off and his body laid upon a square board, the legs stretched to their full extent and secured upon it with small tacks, then baste with bacon fat and roast before a good fire quickly like canvasback ducks.

Broiling on a Stick. This is a good method for cooking a small amount of food. Fish, birds and small animals (large animals must be cut into smaller chunks) can be cleaned and then skewered on a peeled green wood stick. If the food tends to slide, a bark twine can be used to tie it down by splitting the wood down to the game on both ends and twisting bark through the splits. Sear the meat in the flame to seal in the juices. The skewer can be laid over forked green sticks at both ends of an ember bed. As long as the fire does not flame up, the meat needs only occasional turning so it cooks evenly.

Steaming in a Hole. This method can be used to cook small or enormous amounts of food with great results. Build a fire and place some stones in it to heat. Don't select rocks from a stream bed, limestone or sandstone since they can contain trapped moisture and may explode when heated. While the stones are heating, dig a hole. Put the stones in the pit and place a thick layer of wet vegetation like grass or seaweed over them. Lay the food on top of the wet vegetation and place a stick near the edge of the pit. Fill with dirt. Pull the stick out and pour water down this opening onto the rocks to steam the food. Tamp down the top and leave the food to steam for at least two or three hours. If you are cooking something larger than fish or small game, the cooking time will need to be extended.

Grilling. Meat can be grilled over the coals if it is fat. Lean game will end up very dry. Build a bed of hardwood embers and place a grill matting of green sticks on it. Place the meat on the grill and turn immediately after the sides are seared to seal in the juices. Try not to pierce the meat with whatever you are turning it with so you don't lose any juices. Keep a small container of water nearby to douse any flames that surface from the fat drippings.

Fire Cake and Hoe Cakes. One of the easiest ways of making flour edible, even if not very appetizing, is to make a simple dough and fry or bake it over a fire. During the Revolutionary War it was common for soldiers to make a thick paste of flour and water (salt was added when available) and then bake it on hot rocks around a campfire. The result was an unpalatable, chewy, soggy glob which only the starving soldiers at Valley Forge probably appreciated. Hoe cakes were made from a corn meal dough carried to the fields by slaves and other farm workers. At lunch they cleaned their hoes, put the dough on them and cooked it over a fire.

Entrenching Tool Cake

4 GI canteen cups white cornmeal
boiling water

1. GI mess kit spoon (1 tablespoon) bacon drippings
1. GI mess kit spoon salt

Scald cornmeal with enough boiling water to make a stiff batter, then add bacon drippings and salt. Shape into pones, leaving the imprint of four fingers across top. Place batter on the cleaned, greased blade of an entrenching tool and set up next to fire to bake.

Corn Pone

2. cups cornmeal
3/4 tsp. salt (or less)
boiling water

3. tbsp. butter or margarine, melted; or vegetable oil

Combine all ingredients to make a semi-stiff mush. Spread 1/4-inch thick in a well-greased heavy pan and bake at 375 degrees 20 to 25 minutes.
(Corn pones used to be baked on a greased shovel over glowing coals.)

Hardtack. During the War for Southern Independence, hardtack was a staple food (when fresh bread was unavailable) for both the brutal soldiers of the oppressive Federal government and the brave Confederate patriots defending their homeland. Hardtack was a virtually indestructible 1/2-inch thick cracker about three inches by three inches, pierced with sixteen holes and made from flour and water. Tack was a contemptuous term for food and the soldiers "affectionately" referred to hardtack as worm castles, sheet iron crackers and tooth dullers. Some of the hardtack issued to soldiers in the 1860's was supposedly left over from the 1846-48 Mexican War. The daily ration was nine or ten crackers, but there was usually enough for those who wanted more since some men would not draw a full ration. They were eaten plain, soaked in coffee or crumbled and added to the stew pot. A dish known as Skillygalee was made by soaking hardtack in cold water and then browning it in pork fat and seasoning to taste. A favorite seasoning of the times was cayenne pepper. Confederate Cushman provided a dinner entree that consisted of bits of cooked beef, seasoned with garlic, fried in bacon grease and then stewed with crumbled hardtack or cornmeal mush. The crackers included in military C-rations and the current MREs are similar to hardtack, being much more dense, containing more flour and less air than commercial saltine crackers. When fresh, hardtack was not unappetizing, but when boxes of hardtack sat on railroad platforms or warehouses for months before being issued it hardened and often became insect infested. Because hardtack was packed in boxes marked "B.C." (probably for "Brigade Commissary"), soldiers said they were so hard because they were baked "Before Christ". The following account from a Yankee invader indicates how much hardtack was appreciated:

"While before Petersburg, doing siege work in the summer of 1864, our men had wormy hardtack, or ship's biscuit, served out to them for a time. It was a severe trial, and it tested the temper of the men. Breaking open the biscuit and finding live worms in them, they would throw the pieces in the trenches where they were doing duty day by day, although the orders were to keep the trenches clean for sanitary reasons. A brigade officer of the day, seeing some of the scraps along our front, called out sharply to our men 'Throw that hardtack out of the trenches.' Then, as the men promptly gathered it up as directed, he added, 'Don't you know that you've no business to throw hardtack in the trenches? Haven't you been told that often enough?' Out from the injured soldier heart there came the reasonable explanation 'We've thrown it out two or three times, sir, but it crawls back.'"

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